

MOUND

**Environmental
Restoration
Program**

An Environmental Restoration Success Story:

Expediting the Removal Approach for Remediating and Releasing the Mound Plant



Office of Environment, Safety & Health

Office of Environmental Management

Mound Plant

March 1998

Benefits Achieved at Mound:
Estimated Lifecycle Cost Savings = \$2 billion
Expected Acceleration of Site Exit Schedule = 25 years

The improvement of Mound's soil remediation strategy was facilitated by the DOE peer review process. Under this process, an experienced team, composed of DOE, federal and state regulators, and expert consultants, brings lessons learned from around the complex to assist a site in streamlining and improving its assessment and cleanup activities. The peer review team helps the site to work with its regulators to build the support necessary to pursue innovative environmental restoration strategies. A fundamental component of the peer review conducted at Mound was the application of a set of streamlining "principles" identified and developed by DOE and EPA to improve cleanups conducted under RCRA and CERCLA.¹

SITE BACKGROUND: The Mound Plant, which is pursuing site exit, recognized that it could minimize lifecycle costs by transferring its property and exiting the site as quickly as possible. Mound had originally planned to address the soil contamination resulting from its past activities under a set of operable units (OUs), each of which would include a number of potential release sites (PRSs). Under this approach the site would have to conduct a remedial action/feasibility study (RI/FS) and obtain agreement on a Record of Decision (ROD) for each OU. After initiating remedial investigation, Mound recognized that most of its release sites constitute discrete problems. Because the only basis for grouping PRSs together under one OU is geographic proximity, Mound determined that the OU approach did not make sense and would unnecessarily complicate cleanup. The site determined that, rather than attempting to make one decision to address multiple problems, it would be more appropriate and efficient to evaluate these PRSs separately.

Mound is using its removal action authority to remediate each PRS, with the goal of obtaining agreement on a single no further action (NFA) ROD for soil that will allow the site to be deleted off the National Priorities List (NPL). This new approach, coined Mound 2000, has expedited the site's remediation schedule and will allow the site to exit sooner.

PURPOSE OF THE PEER REVIEW: Mound requested the peer review to obtain assistance in determining how to effectively execute its innovative soil remediation strategy. The site recognized that the following issues could limit the success of Mound 2000:

- 1) Completion of removal actions at each of the release sites will achieve PRS cleanup goals; however, residual contamination will remain. In order to achieve protection of human health and the environment for the entire site, Mound needs to ensure that the cumulative effect of the residual contamination at all of the release sites combined does not present an unacceptable risk.
- 2) Mound will not obtain regulator agreement on an NFA ROD if regulators do not agree that protection of human health and the environment has been achieved at each of the release sites. Lack of concurrence when the ROD is submitted may necessitate rework and schedule delays thereby limiting the benefits of this remediation strategy.
- 3) A major potential benefit of Mound 2000 is the opportunity to streamline documentation by focusing on decisions and eliminating superfluous information. The site wanted assistance in working with its regulators to determine how to streamline documentation.
- 4) Although the RI/FS process is not being conducted separately for each PRS, Mound needs to ensure that stakeholders have adequate opportunity to review and

¹ These streamlining principles, including use of a core team, problem definition, early identification of the likely response action, and uncertainty management, are presented in the "Principles of Environmental Restoration" course. This course, provided by DOE's National Environmental Training Office (NETO) in conjunction with EM-43, EH-413, and EPA, can be made available to field ER programs. For more information, please contact NETO's Nick Deloplane at (803) 725-0845.

comment on the approach to separate site problems as well as the site-wide cleanup strategy.

RESULTS: The Mound Plant and its regulators developed a method for jointly and successfully executing Mound 2000. This expedited removal approach is estimated to reduce the baseline schedule for site exit by 25 years and save approximately \$2 billion in lifecycle costs.

Under the Mound 2000 strategy, the site and its regulators work as a core team that reaches consensus on all decisions necessary to determine how each PRS should be addressed.² Further, the core team has identified the specific points at which stakeholder input will be solicited. Because the site obtains agreement from the regulators on the appropriate approach for each PRS and reviews stakeholder input throughout the process, regulators and stakeholders are likely to accept an NFA ROD.

Three processes comprise the core team's agreed-upon strategy for implementing Mound 2000:

1) **Removal site evaluation process:** By evaluating existing information, the core team decides whether or not action is required to address each PRS (i.e. if a problem exists). If the core team determines that additional data collection is necessary to make this decision, it defines the specific information needed. By agreeing on the specific data requirements, the core team ensures that only data necessary to make the decision is collected.

2) **Response action evaluation process:** The core team identifies the preferred response for those PRSs that require action. The site is using its removal action authority and regulators are directly involved in identifying the preferred response. Therefore, this evaluation can focus on only the most likely response action(s) for the PRS and the site is able to proceed quickly to implementation.

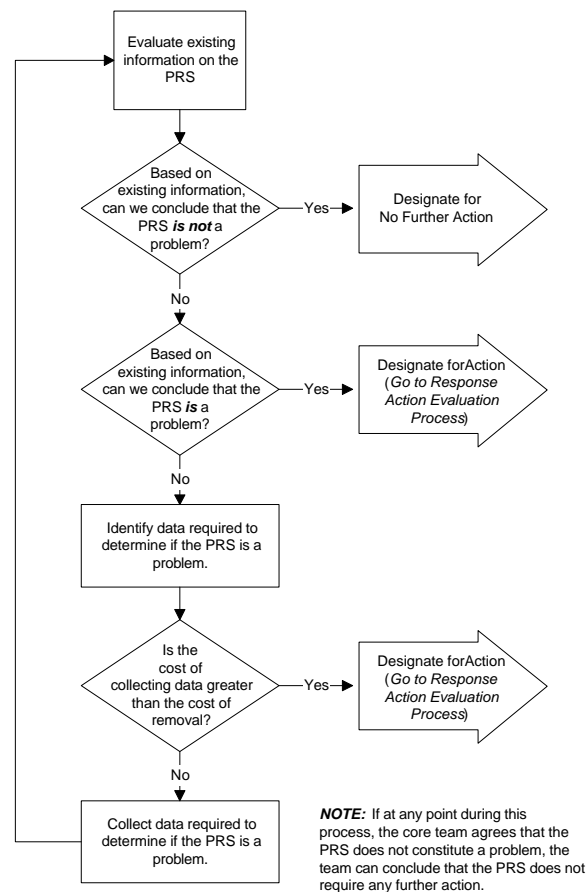
3) **Residual risk evaluation process:** Once the removal actions have been completed for the PRSs within a block of land, the core team evaluates the residual risk posed by contamination remaining within that block. This evaluation verifies that the block is protective of human health and the environment and can be released. The core team agreed that this release block evaluation can verify protection; therefore, individual risk assessments of each PRS are not necessary to allow for release of property.

EXPEDITING MOUND'S SITE EXIT SCHEDULE:

The three processes that the core team developed to execute Mound 2000 provide the following benefits:

I. Expedites decision-making and action. Under an operable unit approach, Mound would need to obtain concurrence on a comprehensive response for addressing multiple problems before taking any action. Instead, under Mound 2000, the site is working directly with its regulators to identify the most appropriate response, including no further action, for each PRS. Because problems are addressed individually rather than in combination, the evaluation process is less complex and decisions are made more quickly than under an OU approach. The site can proceed with action to address individual problems as soon as agreement is reached. The site does not have to conduct the full CERCLA process for numerous OUs; rather, the site need only issue action memoranda and an EE/CA for those PRSs requiring a response and a single ROD for all soil contamination.

Exhibit 1. Mound's Removal Site Evaluation Process



In developing the three processes that comprise the Mound 2000 strategy, the core team identified the specific decisions that require regulator involvement and determined when Mound and its contractors should proceed independently. The core team determines whether or not action is required at a PRS, identifies the likely response action(s), and identifies any data needed to make decisions. Mound submits documentation describing the rationale behind core team decisions to the regulators,

² To obtain fact sheets describing the ER principles used in the Mound 2000, including the core team, problem definition, early identification of the response action, and uncertainty management, please contact Steve Golan, EM-47, at (301) 903-7791 or Richard Dailey, EH-413, at (202) 586-7117. Information may also be obtained from the EH-41 web site at: <http://tis-nt.eh.doe.gov/oepa>.

who provide review to ensure that these decisions are adequately presented. Because the core team has reached these decisions together, this review time is minimal. Further, this close coordination for each PRS allows core team members to address issues and concerns as they arise and minimizes the risk that regulators will not concur with a final NFA ROD.

II. Minimizes data collection. In developing the processes which comprise the Mound 2000 strategy, the core team recognized the benefits of minimizing data collection. Eliminating unnecessary data collection reduces cost and schedule, thereby expediting action and allowing the site to reduce risks to human health and the environment sooner.

The core team reduces data collection by:

1) **Evaluating existing information upfront.** In the removal site evaluation process, the core team first reviews existing information to determine if: 1) a PRS clearly does not pose a problem, and therefore can be designated for no further action: or 2) a PRS definitely requires action and must be evaluated through the response action process. By making this decision upfront whenever possible, the core team is able to reduce characterization activities and expedite action.

2) **Defining specific data needs.** If existing information is insufficient for the core team to determine if the PRS constitutes a problem (i.e., whether action is required), the core team pinpoints the specific additional data needed to make this decision. If the cost of collecting this data is greater than the cost of performing the removal action, the team minimizes use of site resources by assuming that the problem exists and proceeding with action.

3) **Assessing uncertainties.** In the response action evaluation process, the core team uses existing information, whenever possible, to identify the preferred response action for those PRSs that constitute problems. The site uses uncertainty management to proceed with implementation of this response even though some factors may be uncertain. For each uncertain factor, the core team defines the expected condition, identifies potential deviations from these conditions, and assesses the likelihood and impact of those deviations. Based on this evaluation, Mound and its regulators determine if the uncertainty should be reduced through data collection or managed through upfront planning. Management, rather than upfront resolution, of an uncertainty is appropriate if implementation of a contingency plan can effectively minimize the impact of encountering potential deviations. In some cases, the core team may determine that an uncertainty can be ignored because the impact of a potential deviation is negligible. By distinguishing among the uncertainties in this way, the core team focuses characterization activities on obtaining only that data necessary to proceed with implementation.

III. Reduces number of risk assessments necessary for site exit. The Mound core team has agreed that risk evaluations are not required to determine if action is needed at individual PRSs. Rather, once removal actions for the PRSs in a block of land are complete, the core team conducts a risk evaluation to determine if the entire block is protective of human health and the environment and can be released. This evaluation process, agreed-upon by the core team, accounts for the any cumulative risk posed by residual radiological and chemical contamination present at all PRSs in a release block. If this residual contamination poses an unacceptable risk, Mound takes additional action to reduce this risk.

Under this approach, decision-making for each PRS is expedited because the core team does not have to consider residual risk in evaluating and determining the appropriate response; this issue is addressed later through the cumulative risk assessment. Further, this verification approach to risk assessment greatly reduces the number of risk evaluations Mound must conduct and consequently decreases cost and accelerates schedule.

The core team appointed a risk committee to develop recommendations on the appropriate methodology, scenarios, and parameters for determining the residual risk posed by a release block. Because the risk committee had well defined direction from the core team, it could work independently, allowing the core team to focus on other issues. The committee periodically presented its recommendations to the core team and explained how these recommendations would impact the risk assessment (e.g., level of conservatism). Through this approach, the committee developed a risk evaluation methodology that was approved by the core team.

IV. Streamlines documentation and facilitates stakeholder comment and review. In addition to expediting decision-making and action, the Mound 2000 process reduces and simplifies the documentation that must be produced in support of cleanup activities. Once a decision is made for a PRS, the core team issues an action memorandum documenting the decision (i.e., NFA or the selected response action). This memorandum along with existing information for the PRS is made available for public review and comment. Because documentation addresses a discrete site problem, it is more intelligible to stakeholders. Thus, in addition to reducing the cost and time necessary to develop documents, this approach facilitates stakeholder review.

For more information on Mound 2000, please contact Art Kleinrath, DOE CERCLA Program Manager, at (937) 865-3597; Tim Fischer, USEPA Region V, at (312) 886-5787; or Brian Nickel, Ohio EPA, at (513) 285-6468.

DOE is planning on conducting additional peer reviews and will be reviewing requests from sites interested in participating in this program. In addition, limited HQ technical assistance is available for other types of streamlining projects. For further information please contact Richard Dailey, EH-413 at (202) 586-7117 or Steve Golian, EM-47 at (301) 903-7791.
